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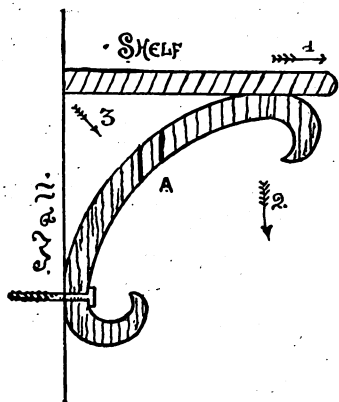
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SHE WANTED A BRACKET.

BY CHARLES BARNARD.

TO begin with she had two vases and a clock. There was no room for them on the bureau and the table was full. So it happened she wanted a shelf whereon the vases and the clock could be disposed. There was just the place for a shelf between the windows. She measured the space and gave the carpenter an order for a board twelve inches wide, four feet long, and three-fourths of an inch thick. The carpenter offered to put it up with nice iron brackets costing fifty cents a pair, but she said him nay. Such cast iron horrors were inartistic. She would have it all of wood. Had she not a scroll saw? Was she not mistress of hammer and screw-driver? She would make her own bracket for sweet economy's dear sake and her own delight.

Straightway she drew upon paper a design for a sweet thing in brackets. Procuring a piece of clear pine, half-inch stuff, she cut out the design upon it with her scroll saw. It was, indeed, a lovely bracket and she at once made another, polished and sand-papered the pair, and gave them a coat of shellac just for color's sake. She then put a screw through each into the wall and laid the shelf upon them. This is the result:



The bracket showed a sense of beauty without knowledge. Common sense suggested the placing of the screw at the point shown, near the end of the bracket. Experiment proved that the whole thing was utterly unlovely and inartistic because not founded on the nature of things. The bracket had the beauty of form in a certain bookish way. It was just like the things in the drawing books. It had also the inherent beauty of color, because the natural color of the wood had been preserved, yet these things were of no value because the bracket was useless.

She laid the shelf on the brackets and it at once tipped up, having no support next the wall. She thought this could be remedied by placing a strip of wood under the shelf against the wall. This worked very well, though it did not look quite right. Then she piled a quantity of books on the shelf to see if its factor of safety was within the probable weight of the clock and vases. Both brackets broke off at the point A and the whole thing was ruined.

At once she went out of doors, found a good tree, and sat down to consider the branches thereof. And this is the sum of her consideration. If any one had laid a beam of wood from the main stem of the tree to the branch, say for the purpose of making a support for a swing or for a ladder to gather the fruit, the branch would be essentially a bracket. The beam, like the shelf, would be a lever with the fulcrum at one end. The branch would resist the downward thrust of the lever at the point where it was most needed. So would the bracket—with this difference: the branch resists the thrust in line of its greatest strength or along the grain; the bracket met the thrust in the direction of its weakest point across the grain. It was also another lever tending to transform the thrust into a transverse strain.

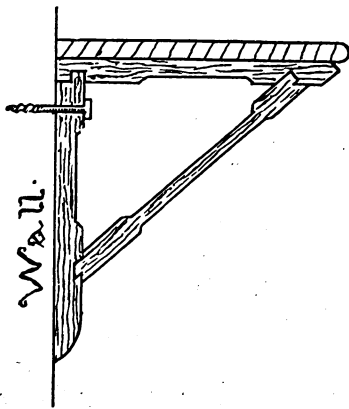
Referring to the bracket she saw in her mind's eye three strains. First, the tendency of the upper part of the bracket to move outward in the direction of arrow 1. Then there was the thrust downward, arrow 2, due to the weight of the shelf, and lastly there were the two combined that made the breaking strain shown by arrow 3 in the diagram. Moreover the carved ends of the bracket did not in any way help to support the shelf, they were liable to be broken off and consequently were inartistic and valueless.

The result of her considerations was a new design for a bracket.

At first it appeared painfully stiff and plain. However it worked, so to speak, it could hold up the shelf with ten times the load that would ever be put upon it. Its factor of safety was as ten is

to one. Besides this, there was only one screw in the wall and placed where it would be out of sight.

The bracket was composed of three parts, and each, like the branch of the tree, cut out in the



line of its greatest strength or along the grain. The first, or wall piece, was placed upright and had a tenon at the top and a mortise in front near the bottom. This was held to the wall by one screw placed near the top. Why? For two reasons. The tendency of the bracket is to fall under the weight of its load. There is also the tendency to fall outward because the shelf acts as a lever. If the screw had been put at the lower end of the stick it would form a pivot on which the bracket would tend to fall outward. By placing the screw at the top it resisted both the downward thrust and the tendency to fall outward.

These things refreshed her mind. It seemed as if she was dealing with the everlasting verities of constructive art. The two remaining members of the bracket had equally important parts to play. The horizontal piece at the top supported the shelf, and, being anchored to the wall-piece by the mortise and tenon, it served as a stay to prevent the bracket from falling outward. It was a tie and resisted the pull of the shelf outward. It was also mortised to the end of the third member that served to transfer the weight of the end of the shelf to the wall-piece. In this last member the duty is to resist a thrust and to support the shelf by transferring its weight to the wall. This member was also mortised into the wall-piece.

The brackets were a success. Severe in their outline, they still had undeniable beauty. With her knife she cut away the edges in places and made incised ornaments here and there. This took away the square-edge appearance of the work and added a measure of ornament. Not much, to be sure, because the whole thing was merely a bracket. It suggested the tree form, the stem and branch. It was fitted to its work and performed it well because properly designed.

Straightway she placed the vases and the clock on the shelf and some books and a lamp and other things, and even the baby when one day the nurse upset the bath tub. Baby sat there for five minutes in mingled comfort and safety and the brackets did not show signs of distress. Then she considered the thing in a deeper sense.

The bracket was strong, simple, well designed, and, as a result, artistic. It was truthful and did not pretend to be what it was not. It might have been turned in a lathe or covered with ornaments, and so long as it preserved the underlying ideas expressed in its present simple form it would be correct. The moment it departed from these principles it would be inartistic, however ornate or whatever its material.

LINOLEUM.

MECHANICAL, chemical, and artistic art unite in linoleum, the production of which, as every one is aware, is quite a modern industry. A covering for floors, stairways, and other surfaces other than textile, supple and of bright surface, incapable of being accidentally stained and which can be easily cleaned, is a necessary addenda to house furnishing, if only as a protection to more valuable coverings. Oil-cloth, cold, hard to the tread and slippery, wholly superseded for the above purposes by linoleum, first came in, slight friction quickly wore the thin film of covering, but, commercially speaking, it lasted longer than it deserved. This was for want of that inventiveness which supplied us with kamtulicon, a composition of comminuted cork and Indian rubber made into a solvent paste by mixing rollers, and admitting of good colored adornment of surface. Though free from the defects of oil-cloth, kamtulicon is apt to spread out under pressure.

Linoleum possesses all the consistence, elasticity and durability that can be desired, and the

composition is as nearly as possible homogeneous. Its main constituents are granulated cork and oxydized linseed oil. Virgin cork, obtained in thin sheets, is employed to produce a fabric of light hue, but the bulk of linoleum is preferably made from cork that has been already utilized, particularly for bottles, thus losing a certain degree of toughness and more readily yielding to disintegration.

The cork, whether new or old, may be said to be tortured into pliability. After cutting knives have done their worst, revolving discs, the peripheries of which are set with teeth similar to those of hand-saws, attack it. Chilled cast iron rollers, cold and heated, and moving with vast velocity, bruise the composition of cork and blended oil, whilst scratchers studded with steel points move in an opposite direction to the cylinders and tear away at the layers of cork and oil clinging to their surfaces. The inherent resistance of the cork to be comminuted or ground is something marvelous.

The cutting, disintegrating, and grinding processes, by which latter the cork and solidified oil are reduced to powder, and the spreading of the material when combined with other substances and rendered plastic by heat on jute canvas, require the aid of powerful machinery. What with hoppers and burr stones for grinding, one is reminded at times of the old-fashioned flour mills.

There is a preparatory oxidizing process effected by spreading a film of the composition over each side of long pieces of cotton cloth, which are hung upon racks. The oxygen, absorbed from the atmosphere, renders the cloth rotten, after which the whole is again ground and the cork and oil are mixed with rosin, kauri gum, red lead, Venetian red, shellac, naphtha, and methylated spirits, blended together by heat. The canvas on which the composition is spread by revolving cylinders is ordinarily one hundred yards long. Long after being spread, linoleum continues to absorb oxygen, thus adding to its weight.

Next follows the application of sizing and of pigments, the latter according to selected patterns, both being laid on warm. The application of patterns was formerly by hand, like the old mode of impressing those on wall paper by blocks, but this primitive course is superseded by revolving rollers.

Many manufacturers keep their own designers, others obtain their patterns from professional designers. A special class of designs with appropriate center and borders are provided for the covers of tables and other surfaces to which linoleum is now usefully applied, temporarily or otherwise, serving frequently for the temporary protection of woven cloths.

We cannot speak too highly of the good judgment and taste shown in the large majority of patterns brought out both for hallway and stair use and as furniture coverings. Small patterns prevail in fine light paint colors. There is not the freedom allowable in this material that exists in carpet patterns or other woven stuffs, but geometrical figures and minute fanciful devices alternating in hues and repeated over the surface, suit it well.

We have inspected some really admirable combinations of simple geometrical figures with flowers and leaves in the interspaces and partially overlapping the former with a certain careless freedom. Mosaic forms interlace one color with another, and delicate tracery and sprigs and foliage appear in bright contrasting hues. Patterns that might be judged somewhat gaudy and aggressive as to colors for woven stuffs are suitable for linoleum.

Considerable attention has been bestowed on suitable designs for what may be described as linoleum mats, placed under stoves or used as crumb cloths. For stairway use, central in addition to border bands, have been introduced, with flower designs on one side of the central band partially straggling over to the other.

ONE of the papers recently gave an account of a blind sculptor who lived in Italy during the middle ages. If it were not that all the facts are against the theory of an elixir of life, one might fancy that that sculptor was alive yet and contributing most of the exhibits to our exhibitions and the monuments to our parks.

THE fancy for gimcrackery in Japanese knick-knacks seems to be at an end. The dealers report that the most expensive and durable objects are now in greatest demand. The public taste and the trade are equally benefited by the change.

OVER \$20,000,000 worth of gold and silver are reported to be annually used in art products. Even the ancients did no better in the days when they worshiped their gods in gold and ivory.